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Indications of a pan-hemispheric bi-partition of the Younger Dryas Stadial from Lake Suigetsu, Japan

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The Younger Dryas Stadial marks the final succession of climatic fluctuations of the last Glacial. Whilst well studied in records from Europe and Greenland, few high resolution records are available from East Asia.

Here we present a high resolution, multi-proxy study of the Lake Suigetsu (Japan) sediments using the 'SG06' composite profile. Utilising microfacies, μ XRF, pollen and diatom analysis we characterise changes occurring in the timeframe corresponding to the Younger Dryas Stadial.

Firstly, our results show that the climatic equivalent of the Younger Dryas at Lake Suigetsu shows no major lead or lag in comparison to records from the North Atlantic region, which was postulated by an earlier project on the Suigetsu sediments ('SG93'). Reason for this disagreement between the SG06 and SG93 core is that the SG93 core/chronology was compromised by gaps between individual cores and varve count uncertainties.

Furthermore, some of the analysed proxies from the SG06 core show a sub-division of the Younger Dryas Stadial. The timing of this sub-division is similar to the bi-partition of the Younger Dryas Stadial observed in a number of European records (e.g. Lane et al., 2013). This bi-partition was related to a northward shift of the westerly wind jet in the North Atlantic region. Our findings imply that the underlying climatic mechanism operated on a hemispheric rather than just on a regional scale.

References:

Lane et al. 2013, Volcanic ash reveals time-transgressive abrupt climate change during the Younger Dryas, *Geology* 41, 1251-1254